

Claims

What is claimed is:

1. An electronic junction comprising:

a first conductive component, said first conductive component comprising:
a substrate having a contact surface; and
a monolayer of plurality of substantially parallel molecular units having
first and second ends, and attached through their first ends to said
contact surface through a conjugated bond; and
a second conductive component in electrical contact with said second ends
of said substantially parallel molecular units.

2. An electronic junction according to claim 1 wherein said first conductive
component comprises electrically conductive carbon.

3. An electronic junction according to claim 1 wherein said substantially parallel
molecular units that are of substantially the same length.

4. An electronic junction according to claim 1 wherein second conductive component
is chemically bound to said second ends of said substantially parallel molecular
units.

5. An electronic junction according to claim 1 wherein at least some of said
molecular units comprise a moiety capable of binding at least one chemical species
so as to alter the electronic character of said at least some of said molecular units.

6. An electronic junction according to claim 1 wherein at least some of said molecular units comprise a moiety capable of binding a metal ion so as to alter the electronic character of said at least some of said molecular units.
7. An electronic junction according to claim 1 wherein at least some of said molecular units are sensitive to incident electromagnetic radiation which may alter the electronic character of said at least some of said molecular units.
8. An electronic junction according to claim 1 wherein at least one of said first and second conductive components is translucent.
9. An electronic junction according to claim 1 wherein at least some of said molecular units form a molecular orbital such that the passage of current through at least some of said molecular units causes the emission of electromagnetic radiation from said at least some of said molecular units.
10. An electronic junction according to claim 9 wherein said electromagnetic radiation is visible light.
11. An electronic junction according to claim 9 wherein said electromagnetic radiation is infrared light.
12. An electronic junction according to claim 9 wherein said electromagnetic radiation is amplified.

13. An electronic junction according to claim 9 wherein at least one of said first and second conductive components is translucent.

14. An electronic junction according to claim 1 wherein at least some of said molecular units are sensitive to the passage of current such that the passage of current through at least some of said molecular units causes a change in the reflectivity or transmissibility of said monolayer.

15. An electronic junction according to claim 1 wherein at least some of said molecular units are sensitive to the incidence of electromagnetic radiation such that the incidence of electromagnetic radiation on at least some of said molecular units causes a change in the reflectivity or transmissibility of said monolayer.

16. An electronic junction according to claim 1 wherein at least some of said molecular units form an arrangement of molecular orbitals such that said electronic junction is capable of functioning as a semiconductor.

17. An electronic junction comprising:

- a first conductive component, said first conductive component comprising a first contact surface;
- a monolayer of a first plurality of substantially parallel first molecular units having first and second ends, each of said parallel first molecular units of substantially the same length and attached through its first end to said first contact surface through a conjugated bond;

a second conductive component having first and second sides, said first side in electrical contact with said second ends of said parallel first molecular units, and said second side having a second contact surface; a monolayer of a second plurality of substantially parallel second molecular units having first and second ends, each of said parallel second molecular units attached through their first end to said second contact surface through a conjugated bond; and a third conductive component having first and second sides, said first side in electrical contact with said second ends of said parallel second molecular units.

18. An electronic junction according to claim 17 wherein said first side of said second conductive component is covalently bound to said second ends of said parallel first molecular units.

19. An electronic junction according to claim 17 wherein said first side of said third conductive component is covalently bound to said second ends of said parallel second molecular units.

20. A method of producing an electronic junction, said method comprising:
providing a first conductive component, said first conductive component comprising:
a substrate having a contact surface; and

a monolayer of plurality of substantially parallel molecular units having first and second ends, and attached through their first ends to said contact surface through a conjugated bond; and placing a second conductive component in electrical contact with said second ends of said substantially parallel molecular units.

21. A method of producing an electronic junction according to claim 20 wherein said second conductive component is chemically bound to said second ends of said substantially parallel molecular units.
22. A method of producing an electronic junction according to claim 20 wherein said second conductive component is covalently bound to said second ends of said substantially parallel molecular units.